Workforce Requirements for PHIN Implementation

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Outline

- Current information technology (IT) systems in communicable disease surveillance & epidemiology
- NEDSS Base System deployment & support
- Workforce culture change
- Training for IT and epidemiology staff

Current Public Health Information Systems

- NETSS & STDMIS – data entered in 13 regional health departments
  - Supported by two Information Resource Support Specialists in central office
- Tuberculosis MIS – data entered in each region
  - Supported by one Statistician in central office

Current Public Health Information Systems

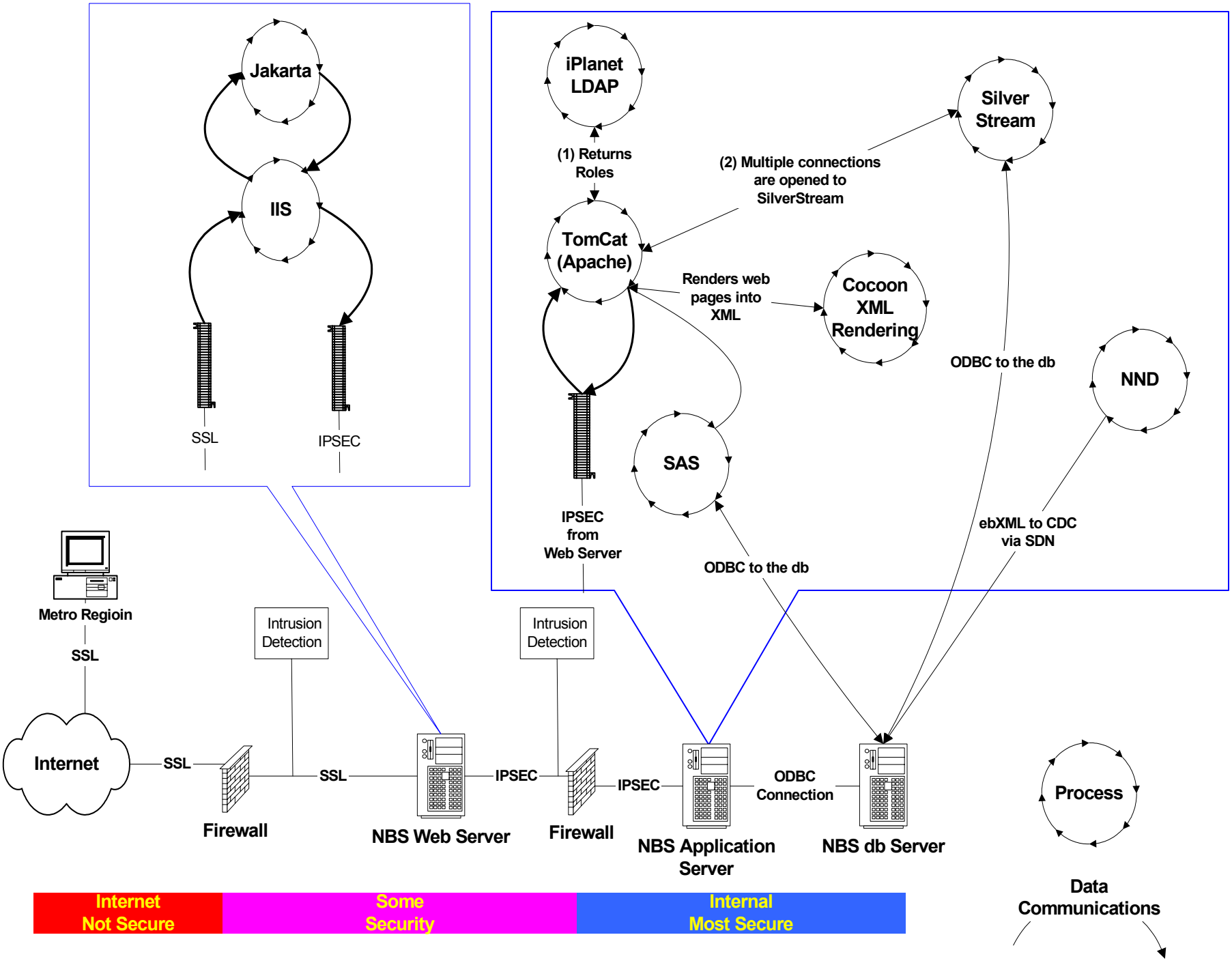
- **HIV/AIDS Reporting System – regional office data entry**
  - **Supported by Information Resource Support Specialist in central office**
- **Immunization Registry – central office data entry, new web-based application**
  - **Support by Information Resource Support Specialist in central office**

NETSS

- National Electronic Telecommunication System for Surveillance
- Operates on PCs in 13 health department regions
- DOS-based
- Supported by one IT staff in central office – local & state IT staff will not support
- Support often requires travel to trouble shoot

Tennessee NEDSS Base System Development Site

- NEDSS Base System – in dual data entry now as field staff are trained
- NEDSS development staff has been critical to its success and not easy to acquire
- Existing staff supplemented with four contractors


Jakarta
IIS
SSL
IPSEC
iPlanet LDAP
(1) Returns Roles
(2) Multiple connections are opened to SilverStream
Silver Stream
TomCat (Apache)
Renders web pages into XML
Cocoon XML Rendering
ODBC to the db
NND
SAS
IPSEC from Web Server
ODBC to the db
ebXML to CDC via SDN
Metro Regioin
SSL
Intrusion Detection
Intrusion Detection
Internet
SSL
SSL
IPSEC
IPSEC
ODBC Connection
Firewall
NBS Web Server
Firewall
NBS Application Server
NBS db Server
Process
Internet Not Secure
Some Security
Internal Most Secure
Data Communications

NEDSS Lead

- Principal investigator
- Senior supervisory manager in epidemiology or surveillance
- Typically epidemiology background with "some" IT experience
- Need to be brought up to speed quickly

NEDSS Project Manager

- Contract versus state employee
- Needs to be full time
- Project management training and experience

Security Specialist & Network Administrator

- Oversee security of system at all levels
- Assure proper two-factor authentication
- User ID, password, digital certificate
- Personnel access
- Back-up of data

Operational Data Store Manager

- Integrated Data Repository Manager
- Maintenance of the database
- Importing legacy and new data
- Integrating disparate data systems
- State-specific PAMs

Web Application Developer

- Assist with web-interface maintenance
- Develop new web applications including state-specific PAMs

Ongoing NEDSS Project Support

- Database management
- Security
- Legacy data
- Integration of disparate datasets
- State-specific PAMs
- State help desk function

State IT Environment

- Slow to adopt new technologies
- Progress with Children's Information Tennessee (CIT) prior to NEDSS
- Security not state-of-the-art -- yet
- Hiring top notch IT technical staff
- Retaining IT staff once they are trained and have experience
- Pay equity improved but still an issue

State Epidemiology Environment

- Rapidly changing
- Data acquisition
  - Moving from passive to active surveillance
  - Aberration detection – 911 calls, ER, MD offices
  - Paper reports to electronic laboratory reporting
  - Timely, almost real time data

State Epidemiology Environment

- Data analysis - use regular data feeds 24 / 7
- Information dissemination – need to notify key partners of important findings
- New resources available to deal with emerging infections and public health preparedness

IT Workforce Issues

- Contractors or state employees
  - Recruitment and retention problems
  - Do state employees have the needed skill set?
- Recent graduates or seasoned veterans
  - Some staff who supported old systems may not want to change to new environment

IT Workforce Issues

- New standards or the way it has always been done
  - Accepting national standards is a must
- Training needs
  - We must be able to train staff in new technologies, e.g. IT College

Epidemiology Workforce Issues

- Seasoned staff not used to 24 / 7 data analysis and response
- Acquiring and manipulating multiple data sources
  - New set of skills
  - Makes manipulating NETSS data look simple
- More sophisticated data analysis skills required in the field - SAS

Culture of Openness

- Cutting / bleeding-edge projects
- Using new national standards
- New technology
- Send staff to national meetings for networking and sharing ideas
- Meet with other disciplines, form multidisciplinary teams
- Share data for the good of our citizens

Culture of Cross Training

- Interdisciplinary teams required for public health informatics projects
- Epidemiologists need to learn the basics of informatics to utilize new data systems

Culture of Cross Training

- IT professionals need to understand the basics of epidemiology to develop web-based data repositories
- Administrative staff needs to know some basic IT and epidemiology to be able to support project development

Culture of Change

- A stable state system does not like change
- Some career employees don't like change
- Staff may resist change in IT and epidemiology

Conclusions

- Cross training for IT and epidemiology professionals is important
- Integration of disparate data systems must become the norm in state health departments
- Change must become a part of the culture
- The time is right to move forward with PHIN

Recommendations

- National Level Training Needs
  - Clear public health competencies in IT
  - IT training for epidemiologists including advanced database development
  - Epidemiology training for IT staff
  - Train the next generation of epidemiology and IT graduates in the basics of public health systems – surveillance, epidemiology, use of integrated databases
  - Train IT staff in national health care standards, e.g. HL7 and other protocols

Recommendations

- State and Local Level Training Needs
  - Encourage willingness to follow national standards
  - Train to use new PHIN systems such as NEDSS and aberration detection
- Training Solutions in Tennessee
  - Development of web-based five-course master's level certificate program – pay increase?
  - Access to on-line MPH for field staff
  - Video conferencing
  - IT College

Recommendations

- **Use PHIN as a model to upgrade and integrate older state systems**
- **Convince all state stakeholders of the value of data integration and sharing**

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